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# **WATER SUPPLY OUTLOOK FOR MONTANA**

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE--SOIL CONSERVATION SERVICE,  
and  
MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with Federal, State, and private organizations listed on the inside back cover of this report.

AS OF  
APR. 1, 1969



## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

## PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 209, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80521
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

## PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



# ***WATER SUPPLY OUTLOOK FOR MONTANA***

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

*Issued by*

**KENNETH E. GRANT**

ADMINISTRATOR  
SOIL CONSERVATION SERVICE  
WASHINGTON, D.C.

|||||  
*Released by*

**A. B. LINFORD**

STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE  
Bozeman, Montana

*In Cooperation with*

**J. A. ASLESON**

DIRECTOR  
Montana Agricultural Experiment Station

|||||  
*Report prepared by*

**P. E. FARNES, Snow Survey Supervisor**

SOIL CONSERVATION SERVICE  
P.O. Box 98  
Bozeman, Montana 59715



## TABLE OF CONTENTS

	Page
WATER SUPPLY OUTLOOK . . . . .	1-2
MAP OF SNOW COURSES AND SOIL MOISTURE STATIONS . . . .	3
SNOW PILLOW DATA	
Kootenai	
Poorman Creek and Banfield Mountain . . . . .	4
Hawkins Lake and Garver Creek . . . . .	5
Columbia	
Black Pine . . . . .	6
Twin Lakes, Saddle Mountain and Twelvemile Creek .	7
Missouri	
Madison Plateau and West Yellowstone . . . . .	8
Bridger Bowl and Maynard Creek . . . . .	9
Shower Falls and Lick Creek . . . . .	10
Spur Park, Rocker Peak, Deadman Creek and Rocky Boy	11
Mount Lockhart and Waldron . . . . .	12
Fisher Creek and Northeast Entrance . . . . .	13
WATER SUPPLY FORECASTS . . . . .	14-20
SNOW SURVEY DATA . . . . .	21-27
SOIL MOISTURE DATA . . . . .	28
RESERVOIR STORAGE DATA . . . . .	29
LIST OF COOPERATORS . . . . .	Inside Back Cover





MONTANA WATER SUPPLY OUTLOOK  
April 1, 1969

\* \* \* \* \*  
\*  
\* Snow accumulation was well below average during \*  
\* March. \*  
\*  
\* Low elevation snow is beginning to melt. A \*  
\* heavy snow pack still exists in the Jefferson \*  
\* and Madison drainages. \*  
\*  
\* Other drainages in Montana have near or above \*  
\* average snow pack. \*  
\*  
\* \* \* \* \*

COLUMBIA RIVER DRAINAGE

Snow - Mountain snow pack is presently near average except in the upper Clark Fork which is about 15 percent above average. Low elevation snow is beginning to melt.

Streamflow - Streams in the Flathead and upper Kootenai are forecast 5 to 10 percent above average. The headwaters of the Clark Fork are expected to produce 20 to 40 percent above average. The Bitterroot, Blackfoot and lower tributaries to the Clark Fork should flow 10 to 20 percent above average. Small streams in a triangle between Kalispell, Libby and Plains are still expected to produce substantial flow.

Late season irrigation supplies are expected to be near or above average in all areas.



#### MISSOURI RIVER DRAINAGE

Snow - Heavy snow pack still exists in the upper Red Rock and Madison drainages. Below average conditions prevail over the central part of the State while remaining areas are near or above average.

Streamflow - Red Rock River forecasts are still larger than any flow in the last 30 years. Madison River forecasts increased slightly over last month while forecasts on other streams were lowered 5 to 10 percent.

Low elevation snow has started to melt.

Late season irrigation supplies should be above average in southwest Montana and near average elsewhere.

#### YELLOWSTONE RIVER DRAINAGE

Snow - Snow pack in the upper Yellowstone is about average while Big Horn tributaries have 90 percent average. The Little Big Horn drainage is less with 83 percent average.

Streamflow - Forecasts on Yellowstone tributaries above Billings are near to 10 percent above average. The Big Horn River is forecast to flow about 7 percent below average; the Big Horn and Yellowstone combine to produce near average runoff for spring and summer period.

Irrigation supplies are expected to be near average.







# INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

## SNOW COURSES

## COLUMBIA RIVER BASIN

Drainage basin & Course Name	Number	Elev.	Sec.	Top.	Range	Record Begin	Measuring Dates	Mean, By 2	Drainage basin & Course Name	Number	Elev.	Sec.	Top.	Range	Record Begin	Measuring Dates	New By 2
COLUMBIA RIVER BASIN																	
KOOTENAI RIVER																	
Bald Eagle Peak	15411	5700	6	27N	31W	1969	3,4,5	1	Bald Ridge	10005	7500	11	4N	10E	1961	3,4,5	1
Benfield Mountain	15408	5600	4	32N	30W	1969	1,2,3,4,5,8,6	1	Camp Senla	9001	7890	2	8S	18E	1937	3,4,5,8,6	1
Barce Creek	15811	5500	36	26N	31W	1956	3,4,5,8,6	2	Cooke Stetson	9007	8150	19	9S	15E	1966	3,4,5	2
Barce Mileway	15816	4600	31	26N	32W	1962	3,4,5,8,6	2	Creville Mountain	10005	8400	22	9S	9E	1935	3,4	2
Barce Trail	15816	4200	31	26N	32W	1962	3,4,5,8,6	2	Flisher Creek	9006	9100	11	9S	14E	1966	1,2,3,4,5,8,6	1,2
Blaisdell Creek	15810	4200	3	32N	33W	1969	1,2,3,4,5	1	Grizzly Park	9005	8400	26	7S	19E	1961	1,2,3,4,5,8,6	1,2
Boiler Creek	14404	5000	12	38N	26W	1937	3,4,5	1,2	Independence	10006	7850	22	7S	12E	1940	3,4,5	1
Coar Grove	15413	4100	35	28N	31W	1969	1,2,3,4,5,8,6	1	Nonsect Peak	10012	8200	22	7S	12E	1961	3,4,5	1
Climack Trail	15406	6100	9	36N	29W	1969	3,4,5,8,6	1	Nonsect Entrance	10013	8200	22	7S	12E	1937	1,2,3,4,5,8,6	1,6
Davis Creek	15404	5400	20	37N	33W	1969	1,2,3,4,5,8,6	1	Porcupine P.S.	10010	6500	36	2N	6E	1940	3,4,5	1
Loggie Creek	15407	5200	35	37N	29W	1969	3,4,5,8,6	1	Sacajawa	10013	6500	36	2N	6E	1940	3,4,5	1
Larver Creek	15405	4250	18	37N	32E	1969	1,2,3,4,5,8,6	1	South Fork Shilda	10008	8100	13	4N	10E	1965	3,4,5	1
Graves Creek	14411	4300	1	36N	25W	1937	3,4,5,8,6	1,2	Tiablerville Creek	9004	8850	10	8S	18E	1961	3,4,5	1
Graves Lake	15403	6550	18	37N	37W	1969	1,2,3,4,5,8,6	1	West Rosebud	9002	7500	9	7S	16E	1960	3,4	2
Madras Lake	15403	6550	18	37N	37W	1969	1,2,3,4,5,8,6	1	White Mill	9008	8700	18	9S	15E	1967	3,4,5	2
RUBY RIVER																	
Brennan Lakes	11014	8850	5	4S	3W	1967	3,4,5	1,12	Abundance Lake	13020	8800	7	3S	11W	1963	3,4,5	1
Clover Meadow	11008	8600	28	9S	4W	1963	3,4,5	1	Darkhorse Lake	13019	8600	4	8S	16W	1963	3,4,5	1
Divide	12607	7900	17	4S	3W	1967	3,4,5	1,12	Foothill	13021	8280	11	1S	13W	1963	3,4,5	1
Middle Mill Creek	11015	7850	17	4S	3W	1967	3,4,5	1	Pelland Creek	13023	8750	29	2N	15S	1967	3,4,5	1
Notch	12606	8500	18	11S	4W	1963	3,4,5	1	Sieg-alt Lake	13024	8400	29	2N	15S	1968	3,4,5	1
Smugler Mine	12605	6960	24	4S	3W	1967	3,4,5	1	BIG HOLE RIVER								
									Abundance Lake	13020	8800	7	3S	11W	1963	3,4,5	1
									Darkhorse Lake	13019	8600	4	8S	16W	1963	3,4,5	1
									Foothill	13021	8280	11	1S	13W	1963	3,4,5	1
									Pelland Creek	13023	8750	29	2N	15S	1967	3,4,5	1
									Sieg-alt Lake	13024	8400	29	2N	15S	1968	3,4,5	1
UPPER YELLOWSTONE RIVER																	
Bald Ridge	10005	7500	11	4N	10E	1961	3,4,5	1	Bald Ridge	10005	7500	11	4N	10E	1961	3,4,5	1
Camp Senla	9001	7890	2	8S	18E	1937	3,4,5,8,6	1	Camp Senla	9001	7890	2	8S	18E	1937	3,4,5,8,6	1
Cooke Stetson	9007	8150	19	9S	15E	1966	3,4,5	2	Cooke Stetson	9007	8150	19	9S	15E	1966	3,4,5	2
Creville Mountain	10005	8400	22	9S	9E	1935	3,4	2	Creville Mountain	10005	8400	22	9S	9E	1935	3,4	2
Flisher Creek	9006	9100	11	9S	14E	1966	1,2,3,4,5,8,6	1,2	Flisher Creek	9006	9100	11	9S	14E	1966	1,2,3,4,5,8,6	1,2
Grizzly Park	9005	8400	26	7S	19E	1961	1,2,3,4,5,8,6	1,2	Grizzly Park	9005	8400	26	7S	19E	1961	1,2,3,4,5,8,6	1,2
Independence	10006	7850	22	7S	12E	1940	3,4,5	1	Independence	10006	7850	22	7S	12E	1940	3,4,5	1
Nonsect Peak	10012	8200	22	7S	12E	1961	3,4,5	1	Nonsect Peak	10012	8200	22	7S	12E	1961	3,4,5	1
Nonsect Entrance	10013	8200	22	7S	12E	1937	1,2,3,4,5,8,6	1,6	Nonsect Entrance	10013	8200	22	7S	12E	1937	1,2,3,4,5,8,6	1,6
Porcupine P.S.	10010	6500	36	2N	6E	1940	3,4,5	1	Porcupine P.S.	10010	6500	36	2N	6E	1940	3,4,5	1
Sacajawa	10013	6500	36	2N	6E	1940	3,4,5	1	Sacajawa	10013	6500	36	2N	6E	1940	3,4,5	1
South Fork Shilda	10008	8100	13	4N	10E	1965	3,4,5	1	South Fork Shilda	10008	8100	13	4N	10E	1965	3,4,5	1
Tiablerville Creek	9004	8850	10	8S	18E	1961	3,4,5	1	Tiablerville Creek	9004	8850	10	8S	18E	1961	3,4,5	1
West Rosebud	9002	7500	9	7S	16E	1960	3,4	2	West Rosebud	9002	7500	9	7S	16E	1960	3,4	2
White Mill	9008	8700	18	9S	15E	1967	3,4,5	2	White Mill	9008	8700	18	9S	15E	1967	3,4,5	2

SCOUT FOR  
Weasel Divide  
FLATHEAD RIVER

COLUMBIA RIVER BASIN																
KOOTENAI RIVER																
Barze Trail	15815M	3800	5	25N	30W	1964	Monthly									
Murphy Lake R.S.	14410M	3000	2	34N	25W	1964	Monthly									
Raven R.S.	15402M	3050	2	26N	29W	1964	Monthly									
FLATHEAD RIVER																
Desert Mountain	13402M	5600	24	31N	10W	1946	Monthly									
Marion Pass	13405M	5200	34	30N	14W	1990	Monthly									
CLARK FORK RIVER																
Black Pass	13C13M	7000	26	8N	15W	1965	Monthly									
Lureholt Forest	13C14M	4100	21	13N	11W	1961	Monthly									
Seelye Lake	13B19M	4030	21	17N	15W	1963	Monthly									
Sokolcho Summit	13C03M	7260	30	6N	17W	1964	Monthly									
BITTERROOT RIVER																

Gold Creek Lake  
Heart Lake Trail  
Hoodoo Basin

[illegible]

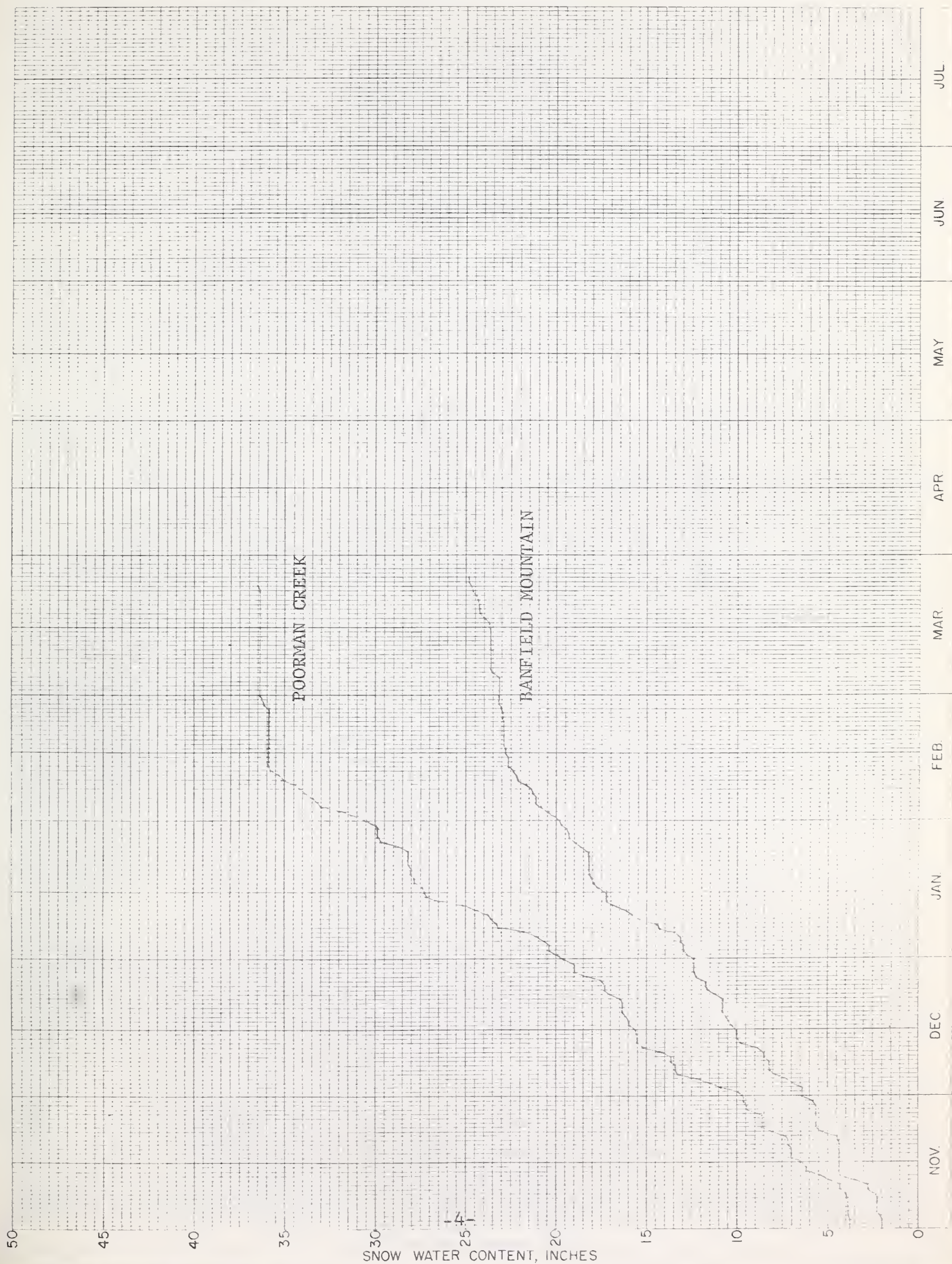
## 8FAVERHEAD RIVER

[illegible][illegible]



SNOW PILLOW DATA  
WATER YEAR 1969

No. \_\_\_\_\_ Elev. \_\_\_\_\_ Drainage: KOOTENAI





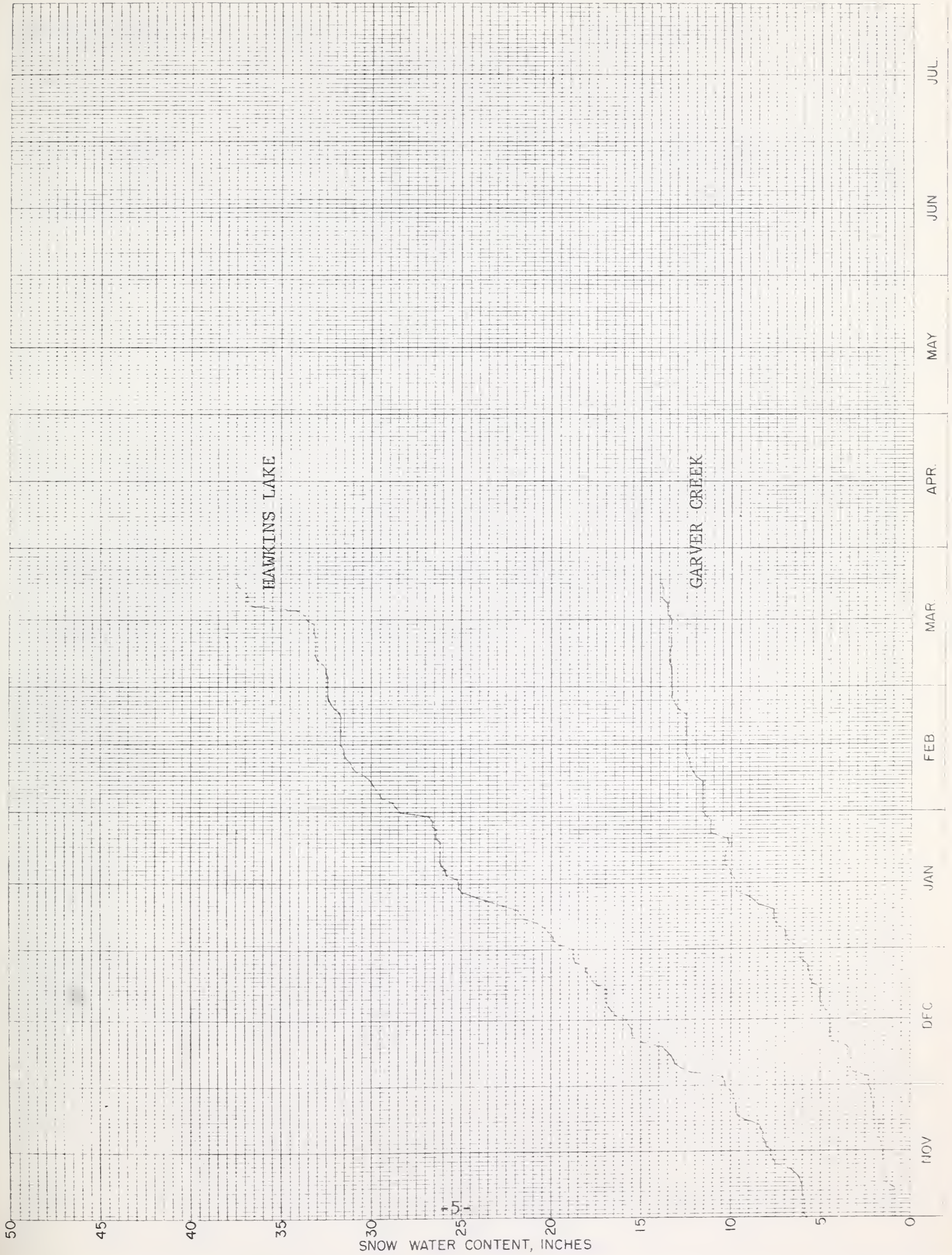


SNOW PILLOW DATA  
WATER YEAR 1969

No. \_\_\_\_\_

Elev. \_\_\_\_\_

Drainage: KOOTENAI



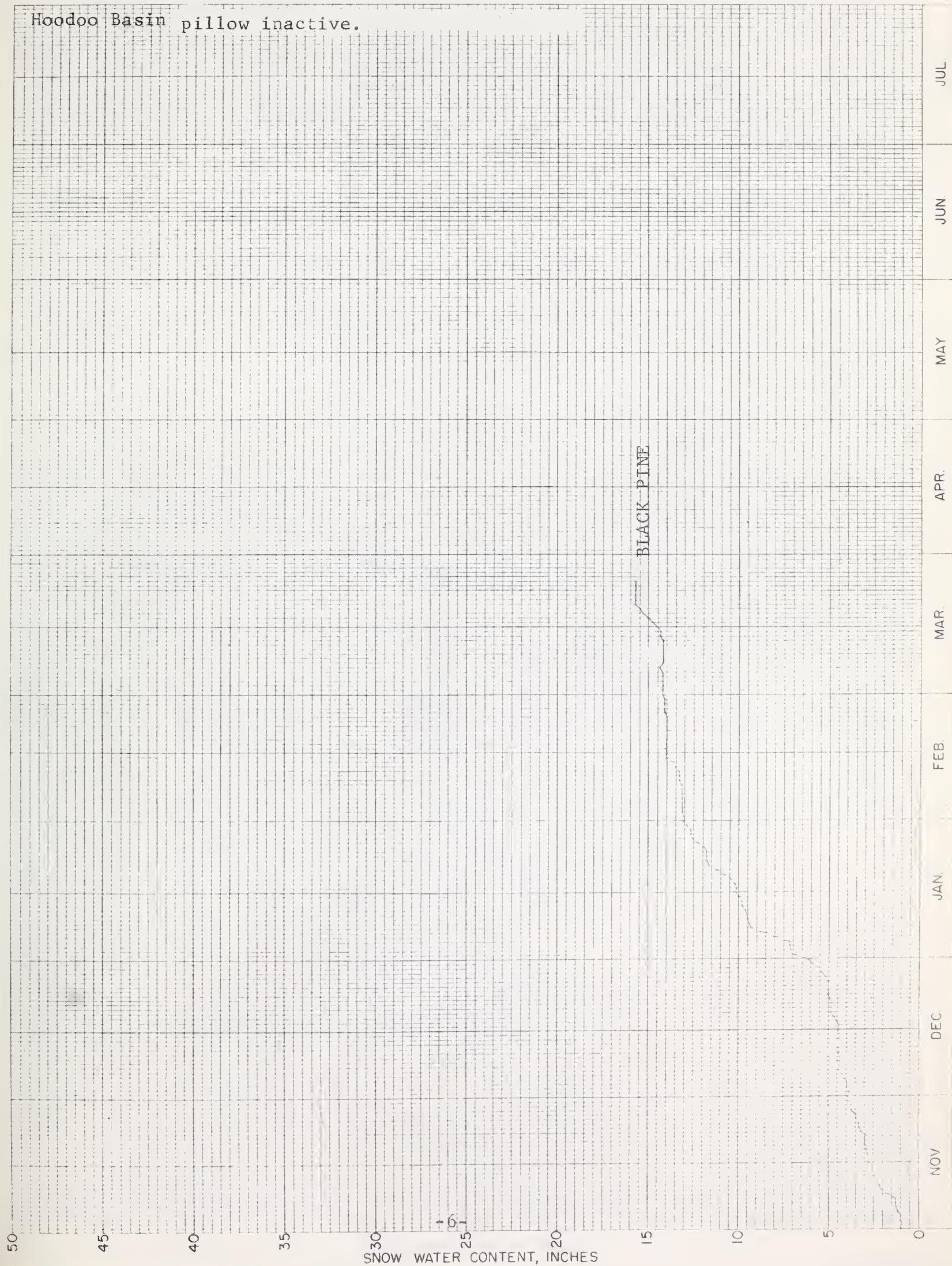




SNOW PILLOW DATA  
WATER YEAR 1969

No. \_\_\_\_\_ Elev. \_\_\_\_\_ Drainage: CLARK FORK

Hoodoo Basin pillow inactive.







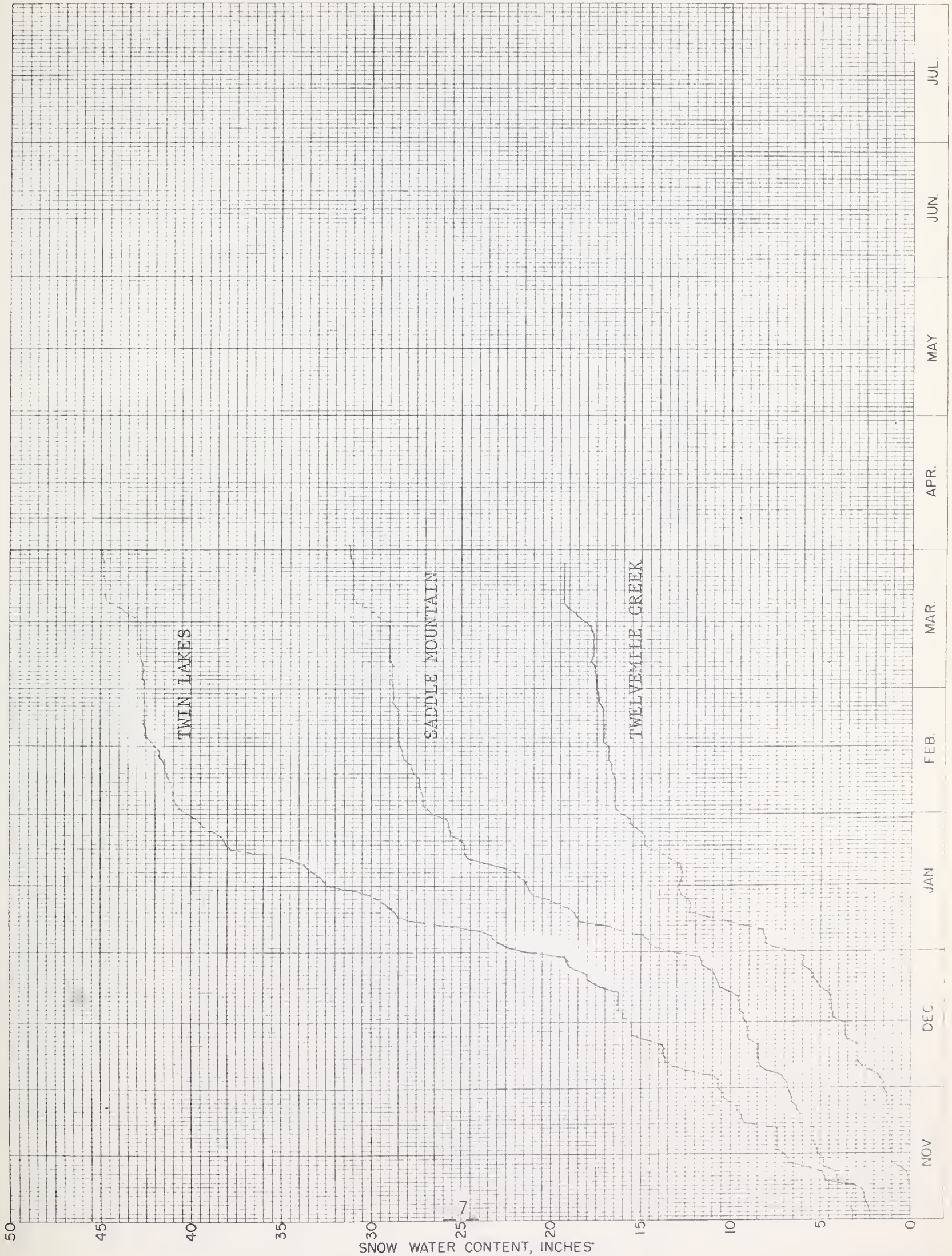
SNOW PILLOW DATA  
WATER YEAR - 1969

No. \_\_\_\_\_

Elev. \_\_\_\_\_

Drainage: \_\_\_\_\_

BITTERROOT





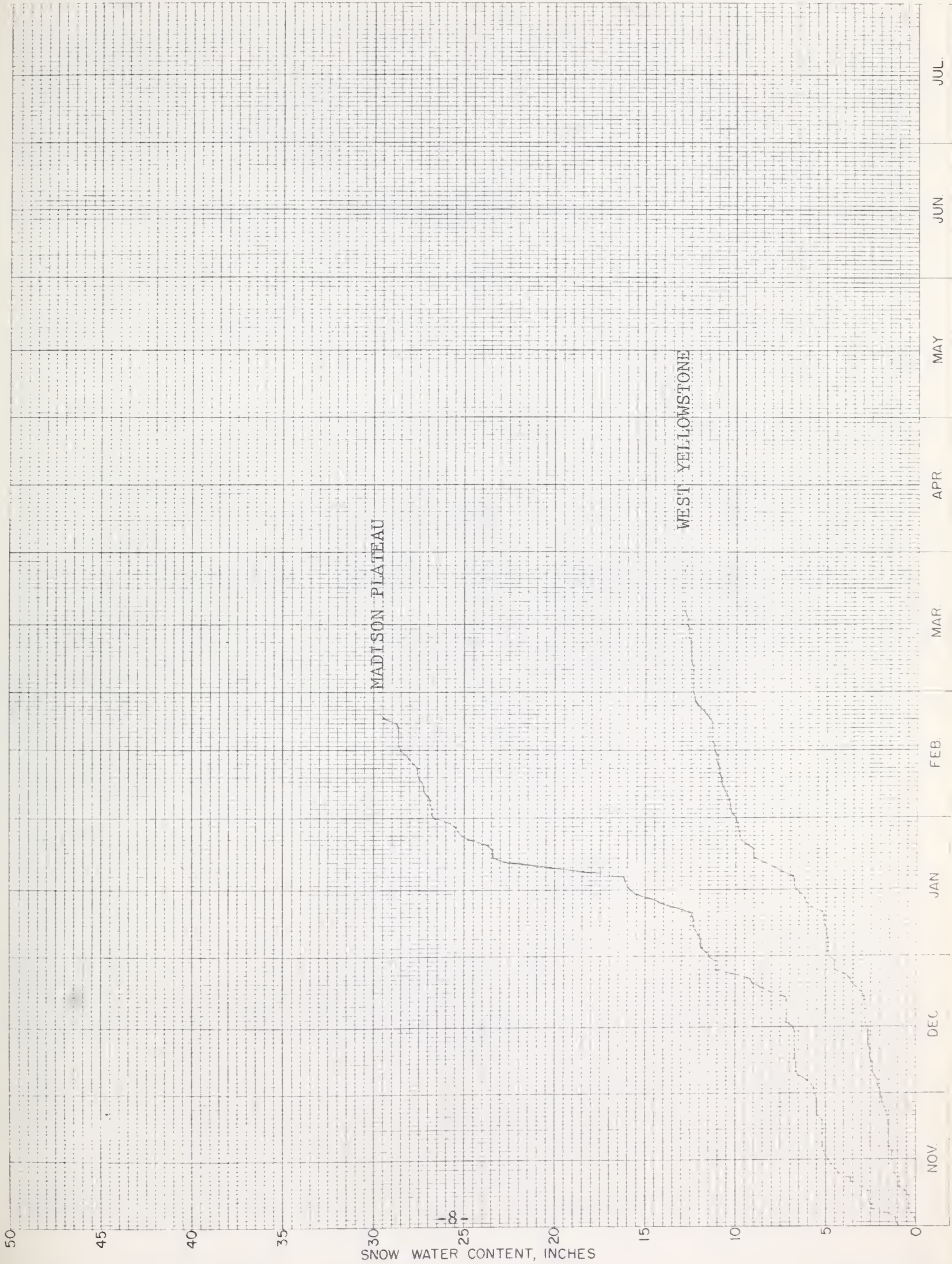


SNOW PILLOW DATA  
WATER YEAR 1969

No

Elev

Drainage: MADISON

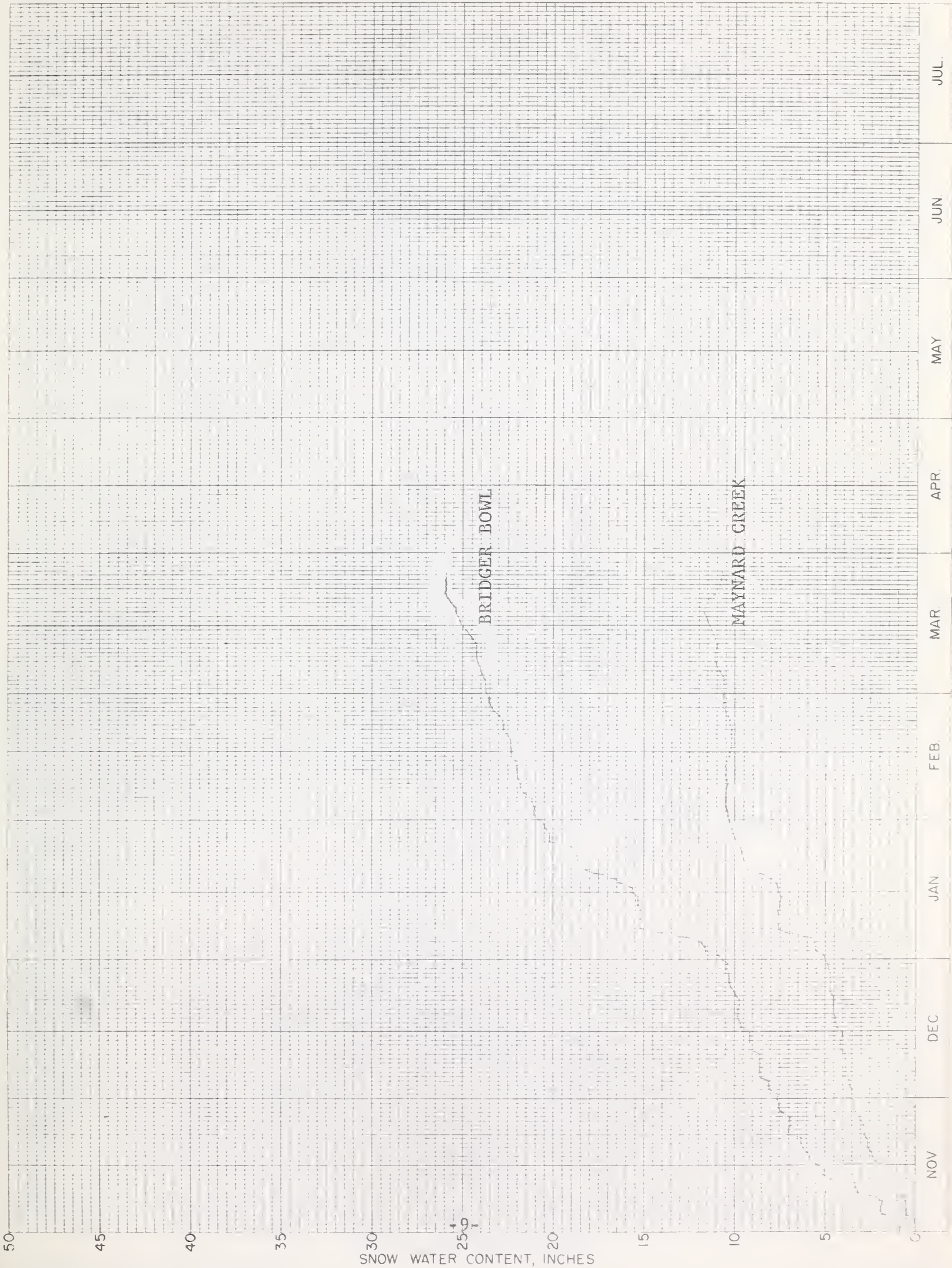






SNOW PILLOW DATA  
WATER YEAR 1969

No. \_\_\_\_\_ Elev. \_\_\_\_\_ Drainage: GALLATIN







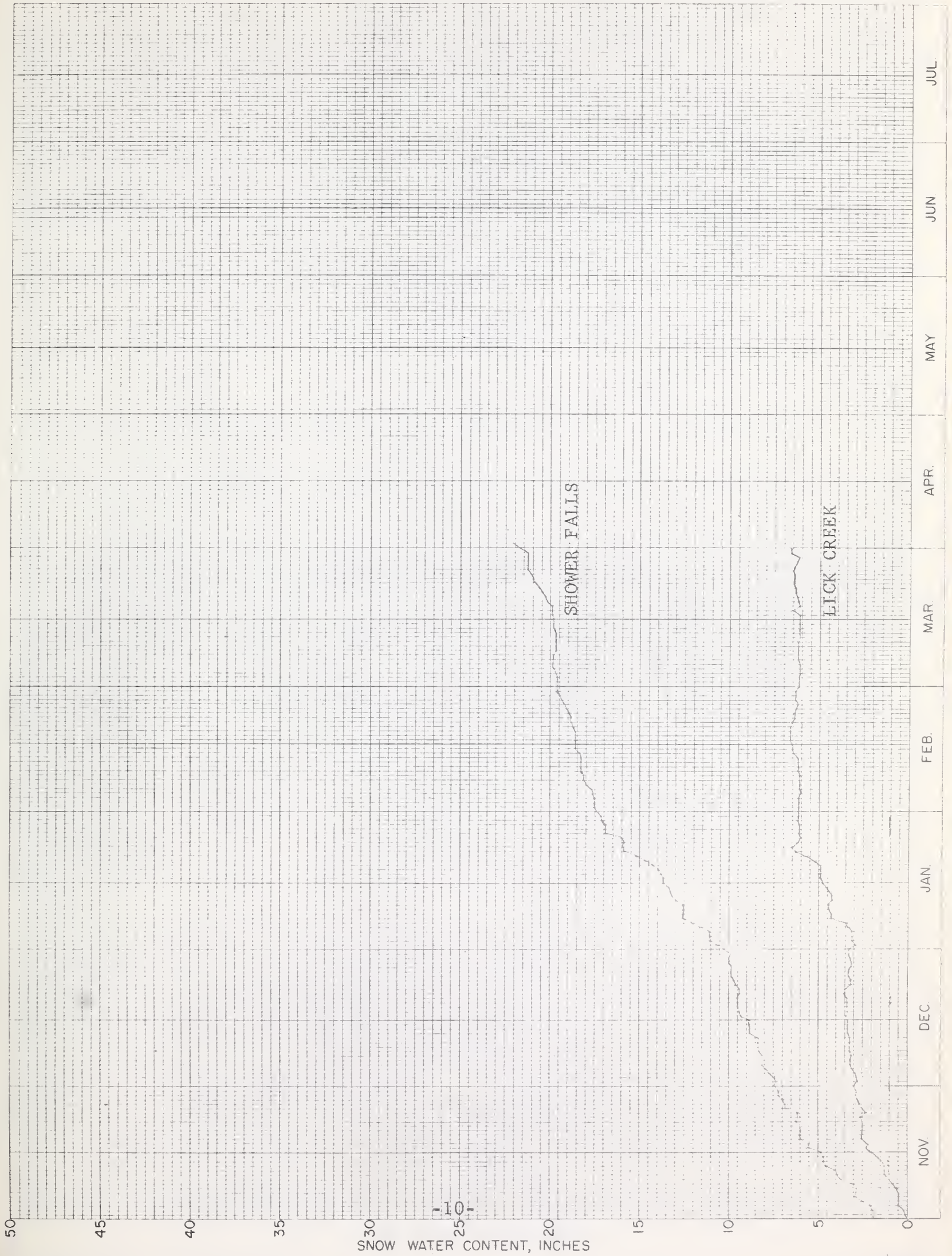
SNOW PILLOW DATA  
WATER YEAR 1969

No. \_\_\_\_\_

Elev. \_\_\_\_\_

Drainage: \_\_\_\_\_

GALLATIN

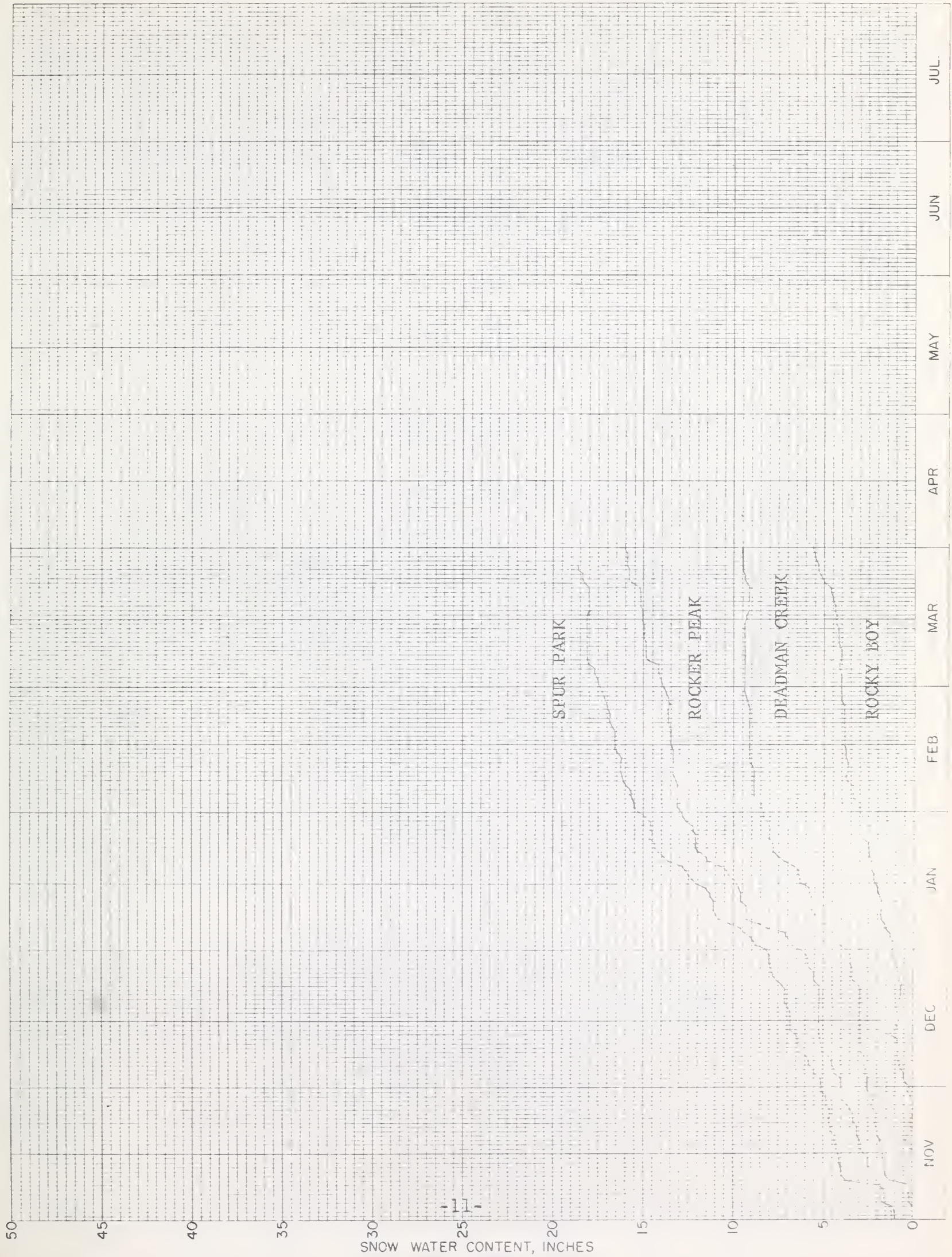






SNOW PILLOW DATA  
WATER YEAR 1969

No. \_\_\_\_\_ Elev. \_\_\_\_\_ Drainage: JUDITH-JEFFERSON-MISSOURI





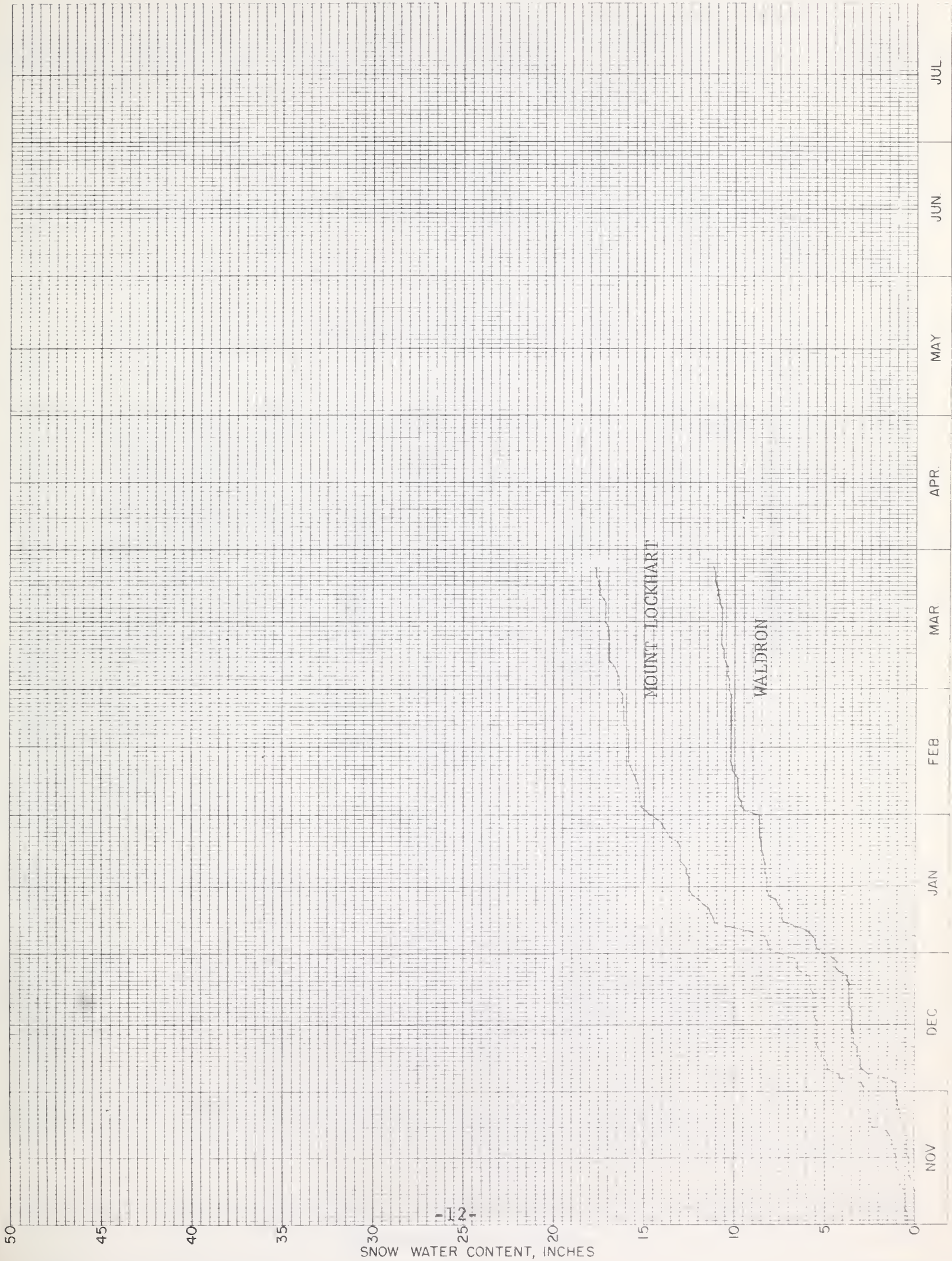


SNOW PILLOW DATA  
WATER YEAR 1969

No. \_\_\_\_\_

Elev. \_\_\_\_\_

Drainage: SUN





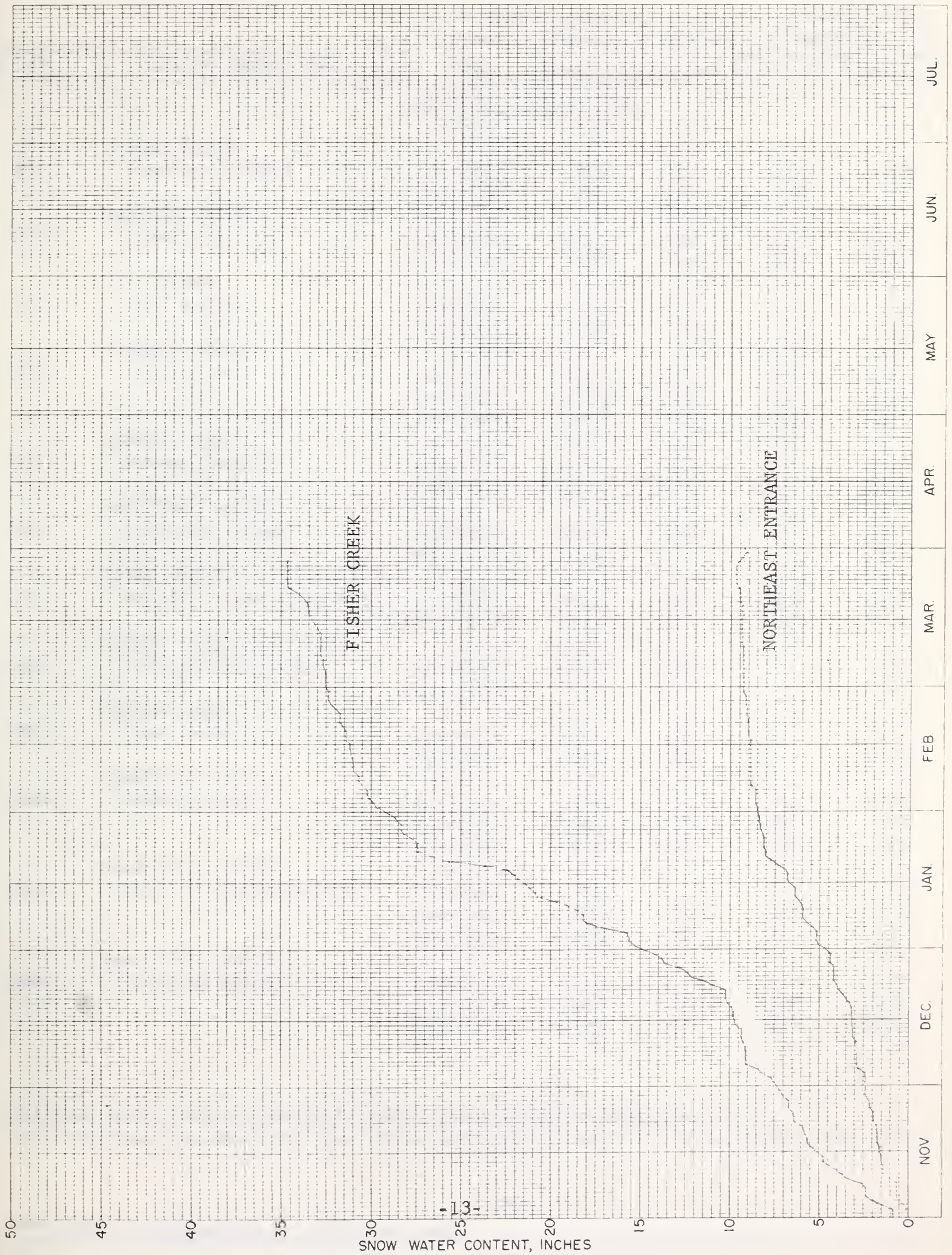


SNOW PILLOW DATA  
WATER YEAR 1969

No. \_\_\_\_\_

Elev. \_\_\_\_\_

Drainage: YELLOWSTONE







# WATER SUPPLY FORECASTS

AS OF APRIL 1, 1969

		FORECAST		FORECAST	PERCENT	(1000 Acre Feet)	
NO.	RIVER AND FORECAST POINT	PERIOD	THIS YEAR	AVERAGE	MEASURED FLOW		
					LAST YEAR*	AVERAGE	
COLUMBIA RIVER BASIN							
3020	FISHER RIVER Jennings (near)	Apr-Sept	360	121	181	298	
		Apr-July	340	121	162	281	
3030	KOOTENAI RIVER Libby (at)	Apr-Sept	8500	106	6961	8025	
		Apr-July	7400	106	5881	6956	
3045	YAAK RIVER Troy (near)	Apr-Sept	660	115	415	573	
		Apr-July	630	115	382	549	
3050	KOOTENAI RIVER Leonia (at)	Apr-Sept	9900	108	7901	9198	
		Apr-July	8700	108	6706	8072	
		Apr-June	6980	108	5192	6463	
3235	GERMAN GULCH Ramsay (near)	Apr-Sept	15.5	129		12.0	
		Apr-July	14.7	129		11.4	
3241	RACETRACK CREEK Anaconda (near)	Apr-Sept	38.5	113		34.1	
		Apr-July	31.2	113		27.6	
3301	FLINT CREEK Boulder Creek (below)(3)	Apr-Sept	86.5	124	77.8	69.6	
		Apr-July	68.4	124	56.5	55.1	
3320	MIDDLE FORK ROCK CREEK Philipsburg (near)	Apr-Sept	85.5	116		73.4	
		Apr-July	77.0	116		66.2	
3355	NEVADA CREEK Finn (near)	Apr-Sept	29.0	140		20.7	
		Apr-July	27.0	140		19.3	
3400	BLACKFOOT RIVER Bonner (near)	Apr-Sept	1150	114	686	1008	
		Apr-July	1040	114	592	912	
		Apr-June	900	114	507	788	
3404	CLARK FORK RIVER Milltown (above)(4)	Apr-Sept	920	121	748	755	
		Apr-July	800	121	605	659	
		Apr-June	680	121	517	562	
3405	CLARK FORK RIVER Missoula (above)	Apr-Sept	2070	117	1434	1763	
		Apr-July	1840	117	1197	1572	
		Apr-June	1580	117	1024	1350	

(3) Sum Flint Creek at Maxville and Boulder Creek at Maxville.

(4) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.



# WATER SUPPLY FORECASTS

AS OF APRIL 1, 1969

		(1000 Acre Feet)				
NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT	MEASURED FLOW	
		PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
	WEST FORK BITTERROOT RIVER					
3425	Conner (near) (5)	Apr-Sept	190	112	162	170
		Apr-July	177	112	148	158
	EAST FORK BITTERROOT RIVER					
3434	Conner (near)	Apr-Sept	187	110	163	170
		Apr-July	170	110	145	154
	BITTERROOT RIVER					
3440	Darby (near)	Apr-Sept	615	110	548	558
		Apr-July	568	110	498	517
		Apr-June	500	110	437	453
	SKALKAHO CREEK					
3465	Hamilton (near)	Apr-Sept	64.0	114	50.9	55.8
		Apr-July	56.0	114	43.2	48.9
	BLODGETT CREEK					
3475	Corvallis (near)	Apr-Sept	45.0	108	41.9	42.9
		Apr-July	44.0	108	36.2	40.8
	BITTERROOT RIVER					
3528	Missoula (at)(6)	Apr-Sept	1620	110	1416	1466
		Apr-July	1500	110	1237	1360
		Apr-June	1300	110	1066	1175
	CLARK FORK RIVER					
3530	Missoula (below)	Apr-Sept	3690	114	2850	3229
		Apr-July	3330	114	2434	2932
		Apr-June	2880	114	2090	2525
	ST. REGIS RIVER					
3540	St. Regis (near)	Apr-Sept	390	118	303	332
		Apr-July	372	118	205	316
	CLARK FORK RIVER					
3545	St. Regis (at)	Apr-Sept	5090	115	3688	4398
		Apr-July	4600	115	3164	3993
		Apr-June	4000	115	2705	3451
	NORTH FORK FLATHEAD RIVER					
3555	Columbia Falls (near)	Apr-Sept	2200	108	1678	2023
		Apr-July	2000	108	1463	1846
		Apr-June	1700	108	1227	1562
	MIDDLE FORK FLATHEAD RIVER					
3585	West Glacier (near)	Apr-Sept	1980	102	1675	1931
		Apr-July	1830	102	1433	1791
		Apr-June	1550	102	1267	1521
	SOUTH FORK FLATHEAD RIVER					
3625	Columbia Falls (near)(7)	Apr-Sept	2500	106	2056	2358
		Apr-July	2370	106	1784	2235
		Apr-June	2090	106	1567	1966

(5) Adjusted for storage in Painted Rocks Reservoir.

(6) Difference in observed flow Clark Fork above and below Missoula.

(7) Adjusted for storage in Hungry Horse Reservoir.





# WATER SUPPLY FORECASTS

AS OF APRIL 1, 1969

		(1000 Acre Feet)				
NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT	MEASURED FLOW	
		PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
	FLATHEAD RIVER					
3630	Columbia Falls (at)(7)	Apr-Sept	6850	106	5485	6467
		Apr-July	6360	106	4757	6003
		Apr-June	5450	106	4067	5155
	SWAN RIVER					
3700	Big Fork (near)	Apr-Sept	720	105	630	688
		Apr-July	640	105	509	607
		Apr-June	510	105	398	496
	FLATHEAD RIVER					
3720	Polson (near) (8)	Apr-Sept	8420	110	6438	7701
		Apr-July	7900	110	5503	7157
		Apr-June	6750	110	4675	6123
	CLARK FORK RIVER					
3890	Plains (near) (8)	Apr-Sept	14060	112	10419	12482
		Apr-July	12900	112	8882	11448
		Apr-June	11000	112	7495	9802
	THOMPSON RIVER					
3895	Thompson Falls (near)	Apr-Sept	340	120	179	283
		Apr-July	302	120	151	253
	PROSPECT CREEK					
3907	Thompson Falls (at)	Apr-Sept	180	118	103	152
		Apr-July	169	118	94.3	143
	CLARK FORK RIVER					
3920	Whitehorse Rapids (at)(9)	Apr-Sept	15900	114	11779	13987
		Apr-July	14500	114	10126	12787
		Apr-June	12500	114	8568	10953

(7) Adjusted for storage in Hungry Horse Reservoir.

(8) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.

(9) Adjusted for storage in Hungry Horse, Flathead Lake and Noxon Rapids Reservoirs.





# WATER SUPPLY FORECASTS

AS OF APRIL 1, 1969

(1000 Acre Feet)

		FORECAST	FORECAST	PERCENT	MEASURED FLOW	
NO.	RIVER AND FORECAST POINT	PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
MISSOURI RIVER BASIN						
0125	RED ROCK RIVER Monida (near)(11)	Apr-Sept	145	183	105	79.1
		Apr-July	133	183	95.4	74.2
0154	BEAVERHEAD RIVER Armstead (near)(11)(12)	Apr-Sept	215	202	138	106
		Apr-July	181	202	108	90.0
0195	RUBY RIVER Alder (near)	Apr-Sept	106	133	99.2	80.0
		Apr-July	89.0	133	81.4	67.0
0255	BIG HOLE RIVER Melrose (near)	Apr-Sept	940	136	705	690
		Apr-July	875	136	625	642
0260	BIRCH CREEK Glen (near)	Apr-Sept	17.0	130	15.2	13.1
		Apr-July	14.3	130	12.6	11.0
0330	BOULDER RIVER Boulder (near)	Apr-Sept	112	144	103	78.9
		Apr-July	108	144	94.9	75.5
0345	JEFFERSON RIVER Sappington (at)(12)	Apr-Sept	1468	147	1012	948
		Apr-July	1330	147	861	857
0350	WILLOW CREEK Harrison (near)	Apr-Sept	24.0	154	19.5	15.5
		Apr-July	22.0	154	16.9	14.2
0375	MADISON RIVER West Yellowstone (near)	Apr-Sept	273	130	244	212
		Apr-July	208	130	181	160
0385	MADISON RIVER Grayling (near)(13)	Apr-Sept	605	140	521	430
		Apr-July	473	140	390	337
0410	MADISON RIVER McAllister (near)(14)	Apr-Sept	1015	140	907	727
		Apr-July	810	140	689	575
0435	GALLATIN RIVER Gateway (near)	Apr-Sept	575	124	641	461
		Apr-July	490	124	533	393
0485	BRIDGER CREEK Bozeman (near)	Apr-Sept	22.8	111	43.2	20.5
		Apr-July	21.5	111	39.1	19.3

(11) Adjusted for storage in Lima Reservoir.

(12) Adjusted for storage in Clark Canyon Reservoir.

(13) Adjusted for storage in Hebgen Lake.

(14) Adjusted for storage in Hebgen and Ennis Lakes.



# WATER SUPPLY FORECASTS

AS OF APRIL 1, 1969

		FORECAST		PERCENT	(1000 Acre Feet) MEASURED FLOW	
NO.	RIVER AND FORECAST POINT	PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
HYALITE CREEK						
0500	Bozeman (near)(15)	Apr-Sept	39.5	106	55.8	37.4
		Apr-July	34.6	106	45.0	32.5
GALLATIN RIVER						
0525	Logan (at)	Apr-Sept	612	130	781	473
		Apr-July	520	130	643	401
MISSOURI RIVER						
0545	Toston (at)(16)	Apr-Sept	3050	144	2771	2105
		Apr-July	2650	144	2287	1836
PRICKLY PEAR CREEK						
0615	Clancy (near)	Apr-Sept	33.5	154	26.3	21.9
		Apr-July	29.3	154	21.8	19.1
LITTLE PRICKLY PEAR CREEK						
0711	Sieben Ranch (at)	Apr-Sept	38.5	137		28.0
		Apr-July	33.0	137		24.0
DEARBORN RIVER						
0735	Craig (near)	Apr-Sept	130	95	65.1	137
		Apr-July	123	95	58.0	130
SHEEP CREEK						
0770	W. Sulphur Springs (near)	Apr-Sept	19.5	106	27.4	184
		Apr-July	17.0	106	24.0	16.0
SMITH RIVER						
0775	Eden (near)	Apr-Sept	197	110	349	179
		Apr-July	182	110	309	165
SUN RIVER						
0786	Gibson Dam (at)(17)	Apr-Sept	550	91	429	604
		Apr-July	505	91	380	555
BELT CREEK						
0905	Monarch (near)	Apr-Sept	120	110		109
		Apr-July	110	110		100
MISSOURI RIVER						
0908	Fort Benton (at)(18)	Apr-Sept	4160	126		3321
		Apr-July	3560	126		2834
TWO MEDICINE CREEK						
0920	Browning (near)(19)	Apr-Sept	230	90		256
		Apr-July	218	90		245
BADGER CREEK						
0925	Browning (near)	Apr-Sept	118	89		133
		Apr-July	103	89		116
CUT BANK CREEK						
0990	Cut Bank (at)	Apr-Sept	110	92		120
		Apr-July	101	92		111

(15) Adjusted for storage in Middle Creek Reservoir.

(16) Adjusted for storage in Hebgen and Ennis Lakes and Clark Canyon Reservoir.

(17) Adjusted for storage in Gibson Reservoir and diversions.

(18) Adjusted for storage in Canyon Ferry Reservoir.

(19) Adjusted for storage in Two Medicine Res. & diversions into Two Medicine Canal.





# WATER SUPPLY FORECASTS

AS OF APRIL 1, 1969

		(1000 Acre Feet)				
NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT	MEASURED FLOW	
		PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
MARIAS RIVER						
0995	Shelby (near)(20)	Apr-Sept	540	89	409	604
		Apr-July	520	89	339	581
MISSOURI RIVER						
1095	Virgelle (at)(21)	Apr-Sept	4820	120		4036
		Apr-July	4200	120		3511
S. FORK JUDITH RIVER						
1098	Utica (near)	Apr-Sept	14.0	112	12.4	11.2
		Apr-July	13.1	112	11.1	10.1
MISSOURI RIVER						
1152	Landusky (near)(21)	Apr-Sept	5400	120		4484
		Apr-July	4700	120		3889
N. FORK MUSSELSHELL RIVER						
1155	Delpine (near)	Apr-Sept	5.8	105	7.6	5.5
		Apr-July	5.0	107	6.1	4.7
S. FORK MUSSELSHELL RIVER						
1185	Martinsdale (above)	Apr-Sept	49.0	106	53.0	46.2
		Apr-July	46.6	106	48.6	44.0
MISSOURI RIVER						
1320	Ft. Peck Dam (below)(22)	Apr-Sept	5200	121		4312
		Apr-July	4600	121		3824
MILK RIVER						
1350	Eastern Crossing (at)	Apr-Sept	265	101	278	262
MISSOURI RIVER						
1770	Wolf Point (near)(22)	Apr-Sept	5700	122		4683
		Apr-July	5100	122		4168
MISSOURI RIVER						
3300	Williston, N.D. (nr)(29)	Apr-Sept	12010	109		10998
		Apr-July	10700	109		9823

## SASKATCHEWAN RIVER BASIN

ST. MARY RIVER						
0175	Babb (near)(30)	Apr-Sept	500	102	455	492
		Apr-July	434	102	362	427

- (20) Adjusted for storage in Two Medicine, Four Horns, Lake Frances and Swift Reservoirs.
- (21) Adjusted for storage in Canyon Ferry and Tiber Reservoirs.
- (22) Adjusted for storage in Canyon Ferry, Tiber and Fort Peck Reservoirs.
- (29) Adjusted for storage in Canyon Ferry, Tiber, Fort Peck, Buffalo Bill, Boysen, and Yellowtail Reservoirs. Sum Yellowstone River near Sidney and Missouri River near Culbertson.
- (30) Adjusted for storage in Lake Sherburne.





# WATER SUPPLY FORECASTS

AS OF APRIL 1, 1969

						(1000 Acre Feet)
NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT	MEASURED FLOW	
		PERIOD	THIS YEAR	AVERAGE	LAST YEAR*	AVERAGE
YELLOWSTONE RIVER BASIN						
	YELLOWSTONE RIVER					
1915	Corwin Springs (at)	Apr-Sept	1980	105	2103	1880
		Apr-July	1660	105	1626	1575
	YELLOWSTONE RIVER					
1925	Livingston (near)	Apr-Sept	2260	107	2590	2122
		Apr-July	1900	107	2038	1769
	SHIELDS RIVER					
1935	Clyde Park (at)	Streamflow measurements discontinued				
	BOULDER RIVER					
2000	Big Timber (at)	Apr-Sept	380	110		347
		Apr-July	360	110		327
	STILLWATER RIVER					
2050	Absarokee (near) (25)	Apr-Sept	560	100		558
		Apr-July	475	100		474
	CLARKS FORK RIVER					
2075	Chance (at)	Apr-Sept	590	101	569	582
		Apr-July	535	101	475	530
	CLARKS FORK RIVER					
2085	Edgar (at)	Apr-Sept	615	100	614	612
		Apr-July	550	100	484	547
	ROCK CREEK					
2095	Red Lodge (near)	Apr-Sept	105	99	150	106
		Apr-July	81.5	99	122	82.1
	YELLOWSTONE RIVER					
2145	Billings (at)	Apr-Sept	4177	106	4777	3944
		Apr-July	3600	106	3801	3400
	BIG HORN RIVER					
2870	St. Xavier (near) (26)	Apr-Sept	1600	93	2072	1719
		Apr-July	1500	93	1668	1625
	LITTLE BIG HORN RIVER					
2920	Lodgegrass (near) (28)	Apr-Sept	100	82		123
		Apr-July	89	82		109
	YELLOWSTONE RIVER					
3090	Miles City (at) (27)	Apr-Sept	5900	101		5850
		Apr-July	5200	101		5177
	YELLOWSTONE RIVER					
3295	Sidney (near) (27)	Apr-Sept	5850	97		6069
		Apr-July	5300	97		5454

(25) Adjusted for storage in Mystic Lake.

(26) Adjusted for storage in Buffalo Bill, Boysen, Bull Lake & Yellowtail Reservoirs

(27) Adjusted for storage in Buffalo Bill, Boysen and Yellowtail Reservoirs.

(28) Sum Little Big Horn below Pass Creek and Lodgegrass Creek near Wyola.



# SNOW SURVEY DATA

AS OF APRIL 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

## COLUMBIA RIVER BASIN

### KOOTENAI RIVER

15A11	Bald Eagle Peak	5700	3/24	163	76.5	-	-
15A08	Banfield Mountain	5600	3/27	73	28.5	-	-
15B11	Baree Creek	5500	3/31	111	49.5	40.7	49.6
15B16	Baree Midway	4600	3/31	97	41.2	27.7	-
15B15	Baree Trail	3800	4/1	39	17.8	0.0	7.8
16A08	Bear Mountain	5400	3/26	164	75.5	-	-
15A10	Bristow Creek	3900	3/27	41	17.9	-	-
14A04	Brush Creek	5000	4/3	38	13.9	8.8	13.1
14A13	Brush Creek Timber	5000	4/3	35	12.4	7.8	11.7
15A13	Cedar Grove	4100	3/24	42	14.9	-	-
15A04	Davis Creek	5400	3/25	74	30.1	-	-
BC 10	Fernie	3500				1.0	8.8
BC 12A	Field	4200	3/29	18	4.4	6.0	5.8
15A05	Garver Creek	4250	3/25	44	17.2	-	-
BC 11	Glacier	4100	3/28	71	27.0	30.9	28.7
14A11	Graves Creek	4300	3/28	53	21.1	12.9	19.5
BC 43	Gray Creek	5100				15.3	19.2
16A07	Halverson Creek	4850	3/26	138	58.0	-	-
15A03	Hawkins Lake	6450	3/25	96	39.4	-	-
16A09	Keeler Creek	3300	3/26	45	21.4	-	-
BC 33	Kicking Horse	5400	3/29	43	12.6	14.5	15.2
BC 20B	Kimberley	3800	3/30	29	9.4	4.4	7.5
15A09	Lost Soul	4800	3/27	50	20.5	-	-
BC 32	Marble Canyon	5000	3/31	46	13.4	10.1	13.2
BC 10B	Morrissey Ridge	6100	3/31	77	31.4	22.8	29.4
BC 10A	New Fernie	4100				9.8	15.8
15A12	Poorman Creek	5100	3/24	109	48.5	-	-
15A01	Red Mountain	6000	3/31	63	23.3	14.9	20.3
BC 8A	Sinclair Pass	4500	3/31	23	6.1	5.2	5.2
14A12	Stahl Peak	6050	3/28	108	44.2	-	-
BC 20A	Sullivan Mine	5100	3/28	51	18.7	13.1	14.6
BC 41	Upper Elk River	4400	3/27	26	9.2	1.6	7.4
14A07	Weasel Divide	5450	3/28	95	39.0	31.1	35.3





# SNOW SURVEY DATA

AS OF APRIL 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

## FLATHEAD RIVER

14B03	Bassoo Peak	5150	3/31	39	14.4	7.6	12.2
13A11	Beaver Lake	5900	4/1	64	23.6	22.6	24.0
13B03	Big Creek	6750	4/2	106	45.8	41.9	46.7
13A17	Camp Misery	6400	4/2	122	51.7	42.4	46.8
13A02	Desert Mountain	5600	4/1	44	18.1	15.6	16.3
13B04	Fatty Creek	5500	4/2	61	24.2	19.2	22.8
14A09	Griffin Creek Divide	5150	4/1	38	13.8	7.9	12.6
13B12	Gunsight Lake	6300	4/1	90	38.6	40.2	41.0
14A03	Hell Roaring Divide	5770	4/2	78	33.5	29.2	33.1
13B13	Holbrook	4530	4/1	31	12.0	4.2	10.4
14A06	Kishenehn	3890	3/27	29	10.3	4.5	9.6
14A05	Logan Creek	4300	4/3	27	9.3	5.3	8.6
13A05	Marias Pass	5250	3/27	50	17.0	12.6	18.8
13A16	Mineral Creek	4000	4/1	49	19.7	10.0	21.4
13B07	North Fork Jocko	6330	4/3	101	44.8	40.6	47.2
13B02	Spotted Bear Mountain	7000	4/1	33	12.3	11.5	15.1
13B01	Trinkus Lake	6100	4/1	102	42.0	41.9	44.2
13B11	Twin Creeks	3580	4/1	25	9.4	0.0	11.4
13B05	Upper Holland Lake	6200	4/1	90	35.2	36.8	36.1

## CLARK FORK RIVER

13C13	Black Pine	7100	3/25	53	17.6	14.0	14.1
13C13	Black Pine Pillow	7100	3/25	SP	15.8	15.4	-
12B10	Copper Creek	5700	4/4	39	16.2	9.3	15.1
12B11	Cotter Mine	6250	4/4	52	21.8	10.6	17.2
13B10	Coyote Hill	4200	4/2	27	9.4	4.6	10.4
13C09	El Dorado Mine	7800	3/28	72	26.1	25.8	21.2
13C11	Fred Burr Pass	8000	3/25	82	28.6	31.3	26.6
13C10	Gold Creek Lake	7200	3/28	57	19.8	17.8	15.9
14C10	Heart Lake Trail	4800	3/27	62	25.0	14.8	23.0
15C10	Hoodoo Basin	6000	3/27	132	56.1	47.6	-
15C10	Hoodoo Basin Pillow	6000				46.3	-
15C01	Hoodoo Creek	5900	3/27	126	52.4	41.3	50.6
13C04	Intergaard	6450	4/1	30	9.2	10.3	8.5
15B02	Lookout	5250	3/29	107	44.7	28.8	38.4
13C21	Lubrecht Forest No. 3	5450	3/29	29	10.6	5.1	7.4
13C22	Lubrecht Forest No. 4	4650	3/29	15	6.8	0.0	2.9
13C08	Lubrecht Forest No. 6	4040	3/29	16	6.2	0.0	3.0
13C12	Red Lion	7100	3/25	58	18.4	20.1	16.6
13C03	Skalkaho Summit	7260	3/27	72	28.8	25.6	26.4
13C02	Slide Rock Mountain	7100	3/26	53	18.2	14.3	15.4
13C05	Southern Cross	6500	4/1	24	7.2	8.3	7.4
13C18	Spring Gulch	6000				9.6	11.9
13C07	Storm Lake	7780	3/24	59	16.3	16.6	14.6
13C06	Stuart Mill	6500	4/1	26	7.9	8.7	7.1
13C01	Stuart Mountain	7400				32.0	32.2
14B01	TV Mountain	6800	4/2	56	22.6	17.5	18.5

SP - Snow pillow observation - water content only.

# After the Rain

by [illegible]



[The following text is extremely faint and largely illegible. It appears to be a series of lines of poetry or prose, organized into several columns. The text is too light to transcribe accurately.]



# SNOW SURVEY DATA

AS OF APRIL 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

## BITTERROOT RIVER

13C16	Ambrose	6480	4/1	39	13.8	12.9	13.7
13C32	Coyote Meadows Trail	7000	3/24	61	20.8	-	-
13D01	East Fork R. S.	5400	4/2	22	5.8	5.6	7.1
13D02	Gibbons Pass	7100	3/25	71	27.0	22.3	23.0
14D03	Kit Carson	5020	3/28	26	9.2	4.4	8.6
14C05	Lolo Pass	5230	3/27	77	31.0	24.4	33.8
14C07	Lost Horse	5940	3/31	80	32.9	29.8	33.0
13D16	Moose Creek	6200	3/31	46	18.2	13.8	16.2
14D02	Nez Perce Camp	5680	3/28	42	14.6	10.4	15.2
14D01	Nez Perce Pass	6570	3/28	48	17.4	15.9	-
13D22	Saddle Mountain	7940	4/1	74	28.6	26.2	25.8
13D22	Saddle Mountain Pillow	7940	4/1	SP	31.2	26.7	-
14C04	Savage Pass	6600	3/28	72	28.0	24.6	28.6
14C13	Twelvemile Creek	5600	3/31	54	21.7	17.9	-
14C13	Twelvemile Creek Pillow	5600	3/31	SP	24.1	18.4	-
14C08	Twin Lakes	6510	3/31	97	42.1	41.9	45.0
14C12	Twin Lakes Pillow	6400	3/31	SP	40.3	39.3	-

SP - Snow pillow observation - water content only.



# SNOW SURVEY DATA

AS OF APRIL 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

## MISSOURI RIVER BASIN

### BEAVERHEAD RIVER

13D10	Bloody Dick	7600	3/27	42	13.6	11.8	11.1
12E03	Camp Creek	6800	3/27	62	22.5	9.5	9.0
12D04	Carter Creek	7400	3/29	26	5.3	6.4	5.8
13E22	Dad Creek Lake	8400	3/30	53	17.6	14.7	13.0
13D15	Elk Horn Springs	7800	3/27	42	12.4	10.0	9.8
13D09	Gold Stone	8100	3/27	51	18.0	15.6	14.8
11E12	Kilgore	6200	3/29	52	19.9	9.0	8.9
11E04	Lakeview Canyon	6930	4/2	64	24.2	13.7	11.5
11E03	Lakeview Ridge	7400	4/2	57	21.0	11.7	10.0
13E01	Lemhi Pass	7480	3/28	39	12.1	10.2	8.5
13E23	Lemhi Ridge	8100	3/28	37	11.2	9.9	-
11E32	Sawtelle Mountain	8715	3/28	115	49.4	28.1	-
13E02	Trail Creek	7090	3/28	40	11.6	9.0	8.4
12E01	White Pine Ridge	8850	3/30	24	5.8	6.9	5.2

### RUBY RIVER

11D14	Branham Lakes	8850	3/27	83	33.5	30.8	-
11D08	Clover Meadow	8600	3/30	58	19.7	20.7	16.0
12E07	Divide	7900	3/30	48	16.2	10.8	9.7
11D15	Middle Mill Creek	7850	3/27	52	19.0	16.4	-
12E06	Notch	8500	3/30	58	19.6	16.6	13.6
12D05	Smuggler Mine	6960	3/27	40	12.2	10.6	-

### BIG HOLE RIVER

13D20	Abundance Lake	8800	3/30	62	24.4	22.2	19.8
13D19	Darkhorse Lake	8600	3/30	72	30.6	28.5	27.0
13D21	Foolhen	8280	3/30	56	20.1	19.4	17.8
13D23	Palisade Creek	8250	3/26	83	34.6	-	-
13D24	Slag-A-Melt Lake	8750	3/30	71	29.8	25.5	-

### JEFFERSON RIVER

12C07	Berry Meadow	7300	4/2	31	8.6	8.0	7.6
12C09	Copper Mountain	7700	3/31	38	11.7	14.2	-
12C10	Nez Perce Creek	6500	3/31	24	7.6	6.6	-
12C06	Picnic Grounds	6500	4/1	20	6.2	4.8	4.6
12D01	Pipestone Pass	7200	3/24	33	7.8	7.0	6.0
12C11	Rocker Peak	8000	4/2	48	16.4	18.4	-
12C11	Rocker Peak Pillow	8000	4/2	SP	16.0	17.4	-
12C12	Uncle Sam Gulch	6500	4/2	27	7.4	9.0	-

SP - Snow pillow observation - water content only.





# SNOW SURVEY DATA

AS OF APRIL 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
			DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
NO.	NAME	ELEVATION				LAST YEAR	AVERAGE

## MADISON RIVER

11E09	Big Springs	6500	3/28	68	27.2	17.9	20.8
11E18	Black Canyon	7850	3/27	102	42.6	24.6	34.6
11E19	Black Moose	8125	3/27	110	47.0	32.4	40.4
11D07	Call Road	8050	3/30	39	10.9	13.0	10.8
11D12	Four Mile	6900	3/24	39	10.4	9.7	8.0
11E05	Hebgen Dam	6550	3/27	45	12.3	13.1	11.3
11E10	Island Park	6315	3/28	62	23.4	13.5	15.6
11D05	Jack Creek	7500	3/25	25	6.0	7.2	6.0
11E22	Lake Creek	6100	3/27	36	11.2	8.0	7.8
11E16	Latham Springs	7650	3/27	96	40.2	27.4	33.5
11E28	Lion Mountain	8760	3/25	72	28.2	21.5	-
11D11	Lower Twin	7900	3/24	69	22.9	23.2	19.0
11E14	Lucky Dog	6900	3/27	79	30.8	19.6	24.8
11E31	Madison Plateau	7750	3/27	78	31.6	18.5	-
11E31	Madison Plateau Pillow	7750	3/27	SP	32.1	21.0	-
11E23	Meridian Creek	7000	3/26	48	16.8	10.6	9.5
10E02	Norris Basin	7500	3/30	37	11.9	12.6	10.1
11D03	North Meadow	7500	3/24	42	11.2	9.0	7.9
11E15	Old Road	7250	3/27	88	34.8	23.4	27.3
11E17	Poacher's Cabin	8000	3/27	95	40.6	27.8	33.6
11E21	Potomageton Park	7150	3/28	53	20.2	15.6	15.4
11E20	Sentinel Creek	8300	3/28	78	30.8	26.8	23.6
11E33	Soap Bogus Divide	7600	3/26	63	23.7	17.5	-
11E24	Tepee Creek	8000	3/26	67	25.2	15.0	13.4
11E08	Valley View	6500	3/28	69	28.1	17.8	15.9
11E07	West Yellowstone	6700	3/27	50	17.0	9.8	10.8
11E07	West Yellowstone Pillow	6700	3/29	SP	12.8	8.7	-
11E30	Whiskey Creek	6800	3/27	75	30.6	19.5	-

## GALLATIN RIVER

10D14	Arch Falls	7350	4/1	38	11.6	16.5	12.6
11D09	Bear Basin	8150	3/26	60	21.0	26.0	20.2
10D15	Bridger Bowl	7250	3/29	67	26.6	35.4	27.6
10D15	Bridger Bowl Pillow	7250	3/29	SP	25.2	30.5	-
11E29	Carrot Basin	9000	4/1	111	49.4	33.0	-
11E29	Carrot Basin Pillow	9000				26.0	-
10D04	Devil's Slide	8100	4/1	58	20.2	28.2	22.4
10D03	Hood Meadow	6600	4/1	27	7.1	11.8	9.8
10D13	Lick Creek	6860	4/1	29	6.0	11.6	10.2
10D13	Lick Creek Pillow	6860	4/1	SP	6.7	11.4	-
10D10	Little Park	7400	3/26	51	16.4	21.0	15.4
10D18	Maynard Creek	6210	3/28	48	16.2	20.4	-
10D18	Maynard Creek Pillow	6210	3/28	SP	10.9	14.2	-
10D01	New World	6700	3/27	37	11.6	15.4	11.0
10D16	Shower Falls	8100	4/1	68	25.8	32.8	26.8
10D16	Shower Falls Pillow	8100	4/1	SP	21.1	29.2	-
11E06	Twenty-One Mile	7150	3/28	67	26.2	16.0	17.4

SP - Snow pillow observation - water content only.





# SNOW SURVEY DATA

AS OF APRIL 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

## MISSOURI RIVER (Main Stem)

9A02	Bear Paw Ski Area	5200				8.6	-
11C01	Boulder Mountain	7950	3/25	55	18.4	20.0	16.8
12C05	Chessman Reservoir	6200	4/2	20	5.8	6.3	4.2
10C09	Deadman Creek	6450	3/28	36	10.8	11.6	-
10C09	Deadman Creek Pillow	6450	3/28	SP	9.5	10.8	-
10C07	Elk Peak	8000	4/1	43	14.2	19.5	16.9
10C02	Grasshopper	7000	4/1	24	7.0	7.6	5.4
10C01	Kings Hill	7500	4/1	42	12.7	15.2	13.2
9A01	Rocky Boy	4700	4/1	18	4.8	4.4	4.5
9A01	Rocky Boy Pillow	4700	4/1	SP	4.9	4.1	-
12C01	Stemple Pass	6600	4/3	35	10.5	9.5	10.8
12C02	Ten Mile Lower	6600	4/2	28	7.8	9.3	6.9
12C03	Ten Mile Middle	6800	4/1	39	12.6	13.0	10.8
12C04	Ten Mile Upper	8000	4/1	47	16.5	17.2	14.0

## SUN-TETON-MARIAS RIVERS

13A15	Badger Pass	6900	4/1	94	38.6	41.6	37.2
13A20	Blue Lake	5900	4/1	71	29.0	-	-
12B06	Cabin Creek	5200	3/31	25	7.6	4.5	7.3
12B09	Five-Bull	5700	4/1	31	11.2	5.0	6.9
12A01	Freight Creek	6000	4/1	50	14.7	13.6	16.6
12B07	Goat Mountain	7000	3/31	41	13.4	8.1	11.7
12B12	Mount Lockhart	6400	3/28	58	19.5	-	-
12B12	Mount Lockhart Pillow	6400	3/28	SP	15.4	-	-
12B13	Waldron	5600	3/28	32	9.8	-	-
12B13	Waldron Pillow	5600	3/28	SP	11.2	-	-
12B04	Wrong Creek	5700	4/2	36	12.0	11.8	16.0
12B03	Wrong Ridge	6800	4/3	48	17.3	18.2	21.9

## JUDITH RIVER

9C02	Avalanche	7100	3/27	52	17.4	27.3	-
9C01	Crystal Lake	6100	3/27	33	9.0	16.2	12.8
9C03	Rock Creek	5600	3/27	25	7.0	11.4	-
10C06	Spur Park	8000	3/28	59	20.2	23.8	21.5
10C06	Spur Park Pillow	8000	3/28	SP	18.7	22.5	-

## MUSSELSHELL RIVER

10C15	Daisy Peak	7600	4/3	33	10.4	-	-
10C13	Eagle Creek	7000	4/2	36	11.7	-	-
10C14	Forest Lake	6400	4/2	32	10.2	-	-
10C11	Haymaker	8050	4/4	41	12.8	-	-
10C12	Johnson Park	6450	4/3	22	6.6	-	-

SP - Snow pillow observation - water content only.

Note: All Averages Based on 1953-67, 15 year period. \*Adjusted Average



# SNOW SURVEY DATA

AS OF APRIL 1, 1969

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

## ST. MARY RIVER

13A18	Hudson Bay Divide	5800	3/27	50	15.7	17.2	18.9
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## SASKATCHEWAN (BOW) RIVER

Alb. 1	Bow River	5100	3/25	33	7.7	6.7	9.4
Alb. 2	Upper Pipestone	5300	3/25	34	8.2	6.4	9.0
Alb. 6	Mirror Lake	6600	3/26	43	12.6	8.0	12.7
Alb. 8	Chateau Lawn	5700	3/26	42	12.2	9.2	11.3
Alb. 10	Mount Eisenhower	5000	3/27	23	6.2	3.5	-

## UPPER YELLOWSTONE RIVER

10C05	Bald Ridge	7500	3/28	35	11.1	14.4	12.5
9D01	Camp Senia	7890	4/1	22	5.5	9.2	6.4
10E03	Canyon	7750	3/31	52	18.0	15.3	16.1
9D07	Cooke Station	8150	3/28	57	21.0	20.6	-
10D05	Crevice Mountain	8400	3/27	36	11.0	13.4	8.8
10E06	East Entrance	7000	3/31	29	8.7	5.6	-
9D06	Fisher Creek	9100	3/28	96	39.8	34.4	-
9D06	Fisher Creek Pillow	9100	3/28	SP	34.7	34.2	-
9D05	Grizzly Peak	8400	4/2	37	10.2	19.2	16.5
10D06	Independence	8000	3/28	52	18.8	20.4	18.2
10E04	Lake Camp	7850	3/30	42	14.0	7.0	9.9
9E01	Lodgepole	8200	3/31	35	10.7	9.9	10.8
10E06	Lupine Creek	7300	3/29	37	10.9	10.2	10.3
10D12	Monument Peak	9000	3/28	73	26.6	27.8	24.8
10D07	Northeast Entrance	7400	3/31	31	9.2	9.8	9.1
10D07	Northeast Entrance Pillow	7350	3/31	SP	9.3	9.6	-
10C03	Porcupine R. S.	6500	3/28	25	6.1	11.0	7.6
10D10	Sacajawea	6550	3/29	43	15.4	18.0	13.0
10C08	South Fork Shields	8100	3/27	57	20.6	27.1	24.1
10E05	Sylvan Pass	7100	3/31	42	14.2	12.1	13.4
10E07	Thumb Divide	7900	3/26	75	27.4	19.0	22.5
9D04	Timberline Creek	8850	4/1	45	13.0	18.4	15.5
9D02	West Rosebud	7500				13.5	10.6
9D08	White Mill	8700	3/28	75	29.4	27.1	-

SP - Snow pillow observation - water content only.





# SOIL MOISTURE DATA

AS OF APRIL 1, 1969

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	** AVERAGE

## COLUMBIA RIVER BASIN

### Kootenai

15B15M	Baree Trail	3800	48	7.5	4/1	6.8	6.5	-
14A10M	Murphy Lake R.S.	3000	48	22.6	4/1	20.1	20.0	-
15A02M	Raven R.S.	3050	48	23.0	4/1	22.0	21.5	-

### Flathead

13A02M	Desert Mountain	5600	54	8.4	4/1	8.7	7.6	7.5
13A05M	Marias Pass	5250	54	6.5	3/31	5.5	5.6	5.3

### Clark Fork

13C13M	Black Pine	7100	48	10.0	3/25	7.9	7.5	-
13B19M	Seeley Lake R.S.	4030	48	11.9	4/4	11.9	11.9	9.5
13C03M	Skalkaho Summit	7260	48	10.8	3/27	9.8	9.8	-

### Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	4/1	5.7	5.7	5.4
14C05M	Lolo Pass	5250	48	10.6	3/28	6.5	10.0	6.5

## MISSOURI RIVER BASIN

### Beaverhead

11E13M	Lakeview	6700	48	15.3	4/1	7.4	5.3	7.2
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### Madison

11D04M	Red Bluff	4800	40	4.7				-
11E07M	West Yellowstone	6700	48	6.5	3/29	2.9	3.7	-

### Gallatin

10D15M	Bridger Bowl	7250	48	17.0	3/29	16.8	15.7	-
11D02M	College Site	4856	54	14.5	4/2	13.6	14.4	11.9
10D13M	Lick Creek	6860	48	18.8	4/1	17.1	17.8	-
11E06M	Twenty-One Mile	7150	48	10.0	3/29	6.7	4.1	3.0

### Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	3/28	7.3	6.1	7.1
12C08M	Stemple Pass	6350	48	5.9	3/28	4.2	5.1	4.6

### Yellowstone

10D11M	Battle Ridge	6020	48	17.6	3/29	14.2	14.6	14.0
10D07M	Northeast Entrance	7350	48	9.4	4/1	7.2	5.3	5.6

\*\* AVERAGE FOR PERIOD OF RECORD

# SOUTH AFRICAN

1914

JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

SOUTH AFRICAN

JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

SOUTH AFRICAN

JANUARY		FEBRUARY		MARCH		APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31



# RESERVOIR STORAGE DATA

AS OF MARCH 31, 1969

(1000 Acre Feet)

			USEABLE STORAGE		
BASIN	RESERVOIR	USEABLE CAPACITY	THIS YEAR	LAST YEAR	AVERAGE
COLUMBIA RIVER BASIN					
Flathead	Hungry Horse	3,428.0	2,201.0	2,215.0	2,077.0**
	Flathead Lake	1,791.0	765.9	889.4	746.7
	Camas (Sum of 4)	45.2	15.8	25.5	30.1
	Mission Valley (Sum of 8)	100.3	77.3	31.4	35.4
Clark Fork	Georgetown Lake	31.0	24.9	25.2	22.1
	Nevada Creek	12.6	8.8	9.0	6.8
	Noxon Rapids	334.6	250.1	261.9	188.0**
Bitterroot	Como	34.9	21.6	22.3	13.4
	Painted Rocks	31.7	21.4	25.5	19.7
MISSOURI RIVER BASIN					
Beaverhead	Clark Canyon	328.9	152.9	159.4	135.6**
	Lima	84.0	42.5	43.5	24.2
Ruby	Ruby	38.8	30.6	30.6	30.0
Madison	Hebgen Lake	377.5	295.4	237.0	176.7
	Ennis Lake	41.0	35.4	35.2	35.5
Gallatin	Middle Creek	8.0	4.0	3.4	3.9
Missouri	Canyon Ferry	2,043.0	1,469.0	1,430.0	1,546.0**
	Hauser & Helena	61.9	62.4	68.4	50.5
	Lake Helena	10.4	10.7	9.4	7.3
	Holter Lake	81.9	71.1	78.5	54.7
	Smith River	10.7	8.4	10.5	7.0**
	Durand	7.0	6.0	7.0	5.0
	Martinsdale	23.1	10.3	9.4	8.0
	Deadman's Basin	72.2	49.1	61.0	48.7
	Fort Peck	19,410.0	16,370.0	16,140.0	11,050.0
	Sun	Gibson	105.0	55.3	41.1
Willow Creek		32.2	23.1	17.8	22.0
Pishkun		32.0	16.6	16.2	17.5
Marias	Lower Two Medicine	16.6		13.7	0.0
	Four Horns	19.2		12.9	12.2
	Swift	30.0	21.4	16.2	21.5
	Lake Frances	112.0	82.4	71.1	84.2
Milk	Tiber	1,313.0	501.8	422.1	643.7**
	Fresno	127.2	134.9	91.9	82.1
	Nelson	66.8	42.5	37.7	40.2
	Lake Sherburne	66.1	28.1	33.3	22.8
Yellowstone	Mystic Lake	20.8	5.2	4.0	5.0
	Tongue River	68.0		45.9	28.7
	Cooney	27.5	20.2	12.5	15.2
Big Horn	Yellowtail	1,356.0	695.3	758.8	-



# Agencies and Organizations Cooperating in Montana Snow Surveys

U. S. Forest Service  
Region I, Missoula, Montana  
Montana Forests and Ranger  
Districts

U. S. Geological Survey  
Helena, Montana  
Portland, Oregon

U. S. Army Corps of Engineers  
Portland, Oregon  
Seattle, Washington  
Walla Walla, Washington  
Omaha, Nebraska

U. S. Indian Irrigation Service  
St. Ignatius, Montana

U. S. Weather Bureau  
Helena, Montana  
Portland, Oregon  
Kansas City, Missouri

U. S. Bureau of Sports Fisheries  
and Wildlife  
Red Rock Lakes Refuge  
Monida, Montana

U. S. Bureau of Reclamation  
Billings, Montana  
Boise, Idaho

U. S. Bonneville Power Administration  
Portland, Oregon

U. S. Soil Conservation Service  
Montana, Wyoming, Idaho

Soil and Water Conservation Districts  
Montana Counties

U. S. National Park Service  
Yellowstone National Park  
Glacier National Park

Montana Power Company  
Butte, Montana

Montana Water Resources Board  
Helena, Montana

North Montana Branch Station  
Agricultural Experiment Station  
Havre, Montana

Montana State University  
Agricultural Experiment Station  
Bozeman, Montana

University of Montana  
School of Forestry  
Missoula, Montana

Water Rights Branch, Dept. of  
Lands and Forests  
Victoria, British Columbia

Department of Energy, Mines and  
Resources  
Calgary, Alberta



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generation, navigation,  
mining and industry

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with the Snow Survey"*